

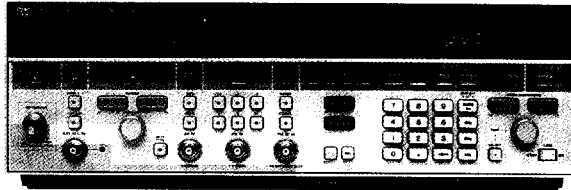
# SIGNAL GENERATORS

## High-Performance Microwave

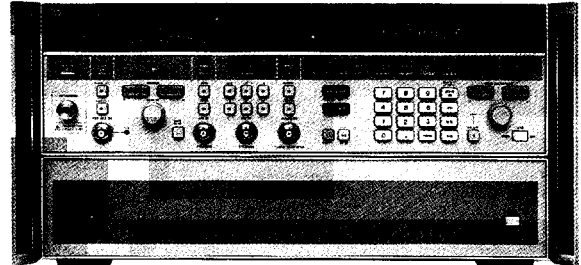
HP 8673B, 8673C, 8673D, 8673E

- 10 MHz to 26.5 GHz frequency range
- $< -60$  dBc harmonics/subharmonics
- Low spurious and phase noise

- +8 to -100 dBm calibrated output
- Internally leveled AM/FM/pulse modulation
- Frequency extension capability to 110 GHz



HP 8673B



HP 8673D

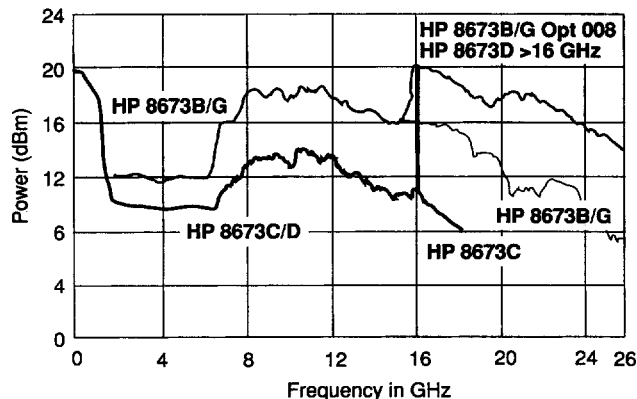


### HP 8673B, 8673C, 8673D, and 8673E Synthesized Signal Generators

The HP 8673B/C/D/E Synthesized Signal Generators are full-performance synthesizers designed to generate precise microwave signals over the 50 MHz to 26.5 GHz frequency range. These generators offer calibrated and leveled power, AM, FM, pulse modulation, digital sweep, programmability, and frequency extension capability to 110 GHz. The HP 8673B covers 2.0 to 26.5 GHz. The HP 8673C/D pair cover 50 MHz to 18.6 GHz and 26.5 GHz respectively and the HP 8673E covers 2.0 to 18.6 GHz.

#### Excellent Spectral Purity

A variety of applications ranging from microwave radar to communications systems require the frequency stability available from the HP 8673B/C/D/E. The broadband frequency coverage is derived from multiplying a fundamental 2.0 to 6.6 GHz YIG-tuned oscillator. This technique provides the wide frequency coverage in a single instrument. Indirect synthesis phase-locks the YIG-tuned oscillator to a 10 MHz quartz crystal reference to provide excellent long term and short term stability (frequency drift  $< 5 \times 10^{-10}$  per day), (HP 8673B/C/D). Phase locked loops are optimized for lowest possible single-sideband phase noise. The HP 8673C and HP 8673D include an internal tracking YIG-filter to further reduce unwanted harmonic, subharmonic, and nonharmonic spurious signals above 1.2 GHz to  $< -60$  dBc.



Maximum power typically available from HP 8673B/C/D/G and HP 8673B/G Option 008 at 25° C. HP 8673E and HP 8673H Option 212 and Option 618 typical maximum power is the same as HP 8673B/G over 2.0 to 18.0 GHz.

#### Wide Dynamic Output Range

For broadband component and receiver testing applications, the HP 8673B/C/D/E deliver exceptionally flat power output across the full frequency ranges. For receiver sensitivity measurements, power is internally (or externally) leveled to -100 dBm (-120 dBm for the HP 8673E). Maximum available power varies with frequency as shown in the figure below.

#### Internally Leveled Pulse Modulation

The HP 8673B/C/D/E features an internal pulse modulator that provides high-quality pulse modulation over the entire 50 MHz to 26.5 GHz range. Since the modulation is done before the frequency multiplication, the peak pulsed power can be leveled and calibrated to within typically +1.5/-1.0 dBm of the set level referenced to CW. External TTL level pulse rates up to 1 MHz and pulse widths as narrow as 100 ns can be easily accommodated by the HP 8673B/C/D/E to provide ON/OFF ratios in excess of 80 dB.

#### Calibrated AM/FM Modulation

AM and FM capability is included in the HP 8673B/C/D/E to expand the versatility in receiver testing applications. AM depth at rates up to 100 kHz can be accurately set using the front panel meter. Six ranges of metered FM are available at rates and peak deviations up to 10 MHz. The HP 8673E features unlocked mode which allows up to 10 MHz deviation at rates as low as 50 Hz. Both AM depth and FM deviation are linearly controlled by varying the externally supplied modulating input voltage up to 1V peak. Simultaneous modulation of AM, FM, and pulse is possible to simulate complex environments.

#### Frequency Extension to 110 GHz

The HP 8673B/C/D can be used as microwave drivers for the HP 83550-series millimeter-wave source modules. This combination (with the addition of the HP 8349B Microwave Amplifier) can provide leveled output signals up to 110 GHz with the "System Leveling" mode. The resultant output frequency can be displayed on the HP 8673B/C/D front panel by entering the multiplication factor of the source module.

#### Full Programmability and Digital Sweep

The HP 8673B/C/D/E provide full programmability of all front panel functions for automatic test applications. Output level can be controlled in steps as fine as 0.1 dB. An internal microprocessor is used to simplify HP-IB program code generation and follow front-panel keystroke sequences. This design allows the implementation of digital sweep. Sweep spans can be set over the entire frequency range with variable rates, step sizes, and selectable markers available.

